(12) UK Patent Application (19) GB (11) 2 364 339 (13) A

(43) Date of A Publication 23.01.2002

(21) Application No 0112153.2

(22) Date of Filing 18.05.2001

(30) Priority Data
(31) 0011987 (32) 19.05.2000 (33) GB

(71) Applicant(s)
CDS Marketing Limited
(Incorporated in the United Kingdom)
Weston Hall, Weston Hall Road, Lenwade, NORWICH, Norfolk, NR9 5JG, United Kingdom

(72) Inventor(s)
Carl Williams

(74) Agent and/or Address for Service
Keith W Nash & Co
90-92 Regent Street, CAMBRIDGE, CB2 1DP, United Kingdom

(51) INT CL[7]
E04D 13/064

(52) UK CL (Edition T)
E1D DPD

(56) Documents Cited
US 5660001 A US 5457916 A
US 5056276 A US 4796390 A

(58) Field of Search
UK CL (Edition S) E1D DPD
INT CL[7] E04D 13/064
Online: EPODOC, WPI, JAPIO

(54) Abstract Title
A guard for protecting guttering fitted to a conservatory

(57) A gutter guard comprising a panel (22) for overlying the open face of a gutter (10), a clip along a first outer edge of the panel which, in use, secures it to an outer edge of the gutter (29) and a sealing joint (28) between a second panel outer edge and a conservatory roof (16). The clip may be formed integrally with the panel or comprise a separate elongate member and the gutter guard may be formed integrally with a poly end closure (18) which, in use, is fitted to a lower end of a polycarbonate sheet roof. The panel may include ridges (52, 54, Figure 7), steps (Figures 9a, 9b, 9c) or a trough (58, Figure 7) to slow the rate of flow of the water over the guard.

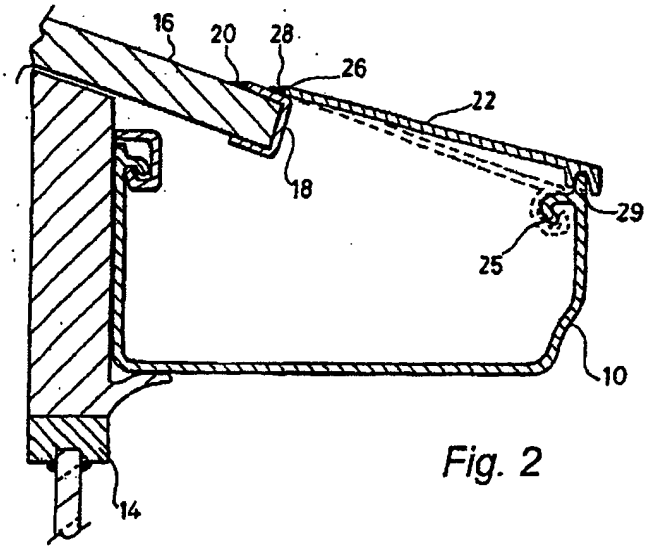

Fig. 2

GB 2 364 339 A

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

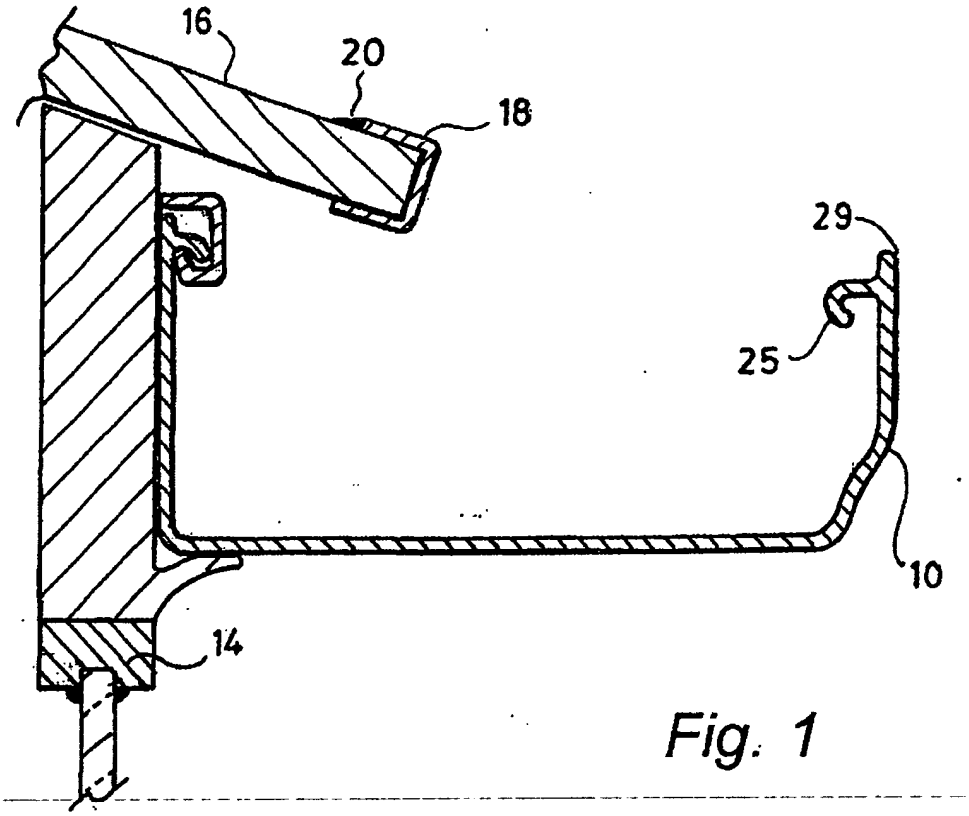

Fig. 1

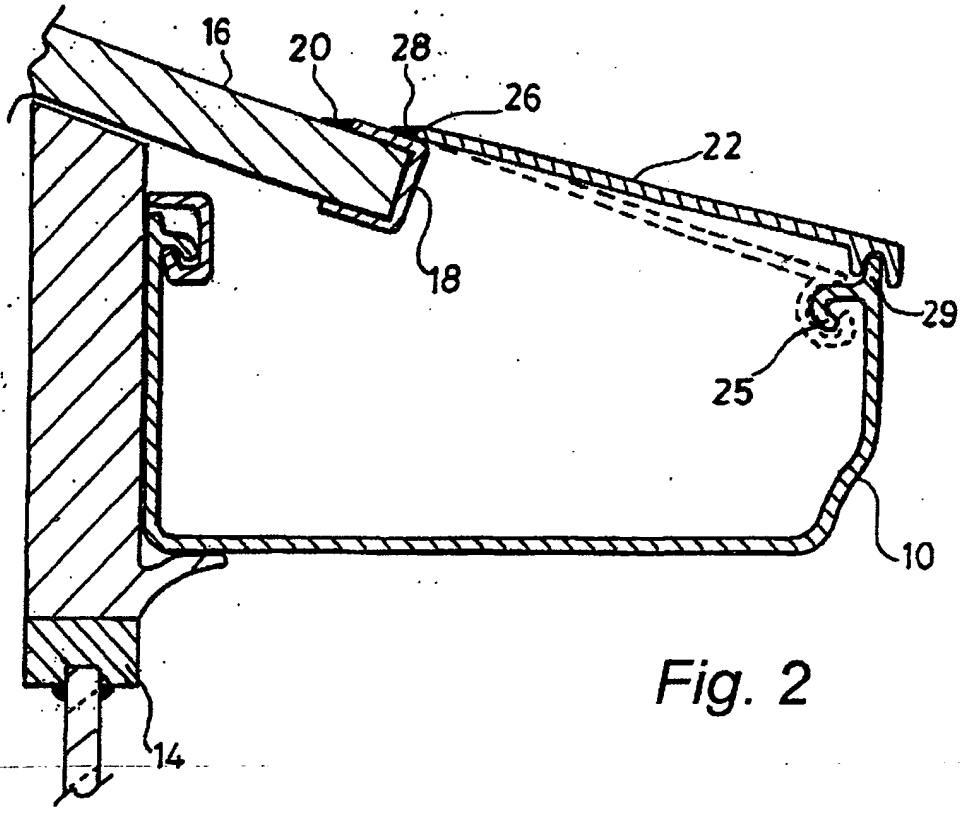

Fig. 2

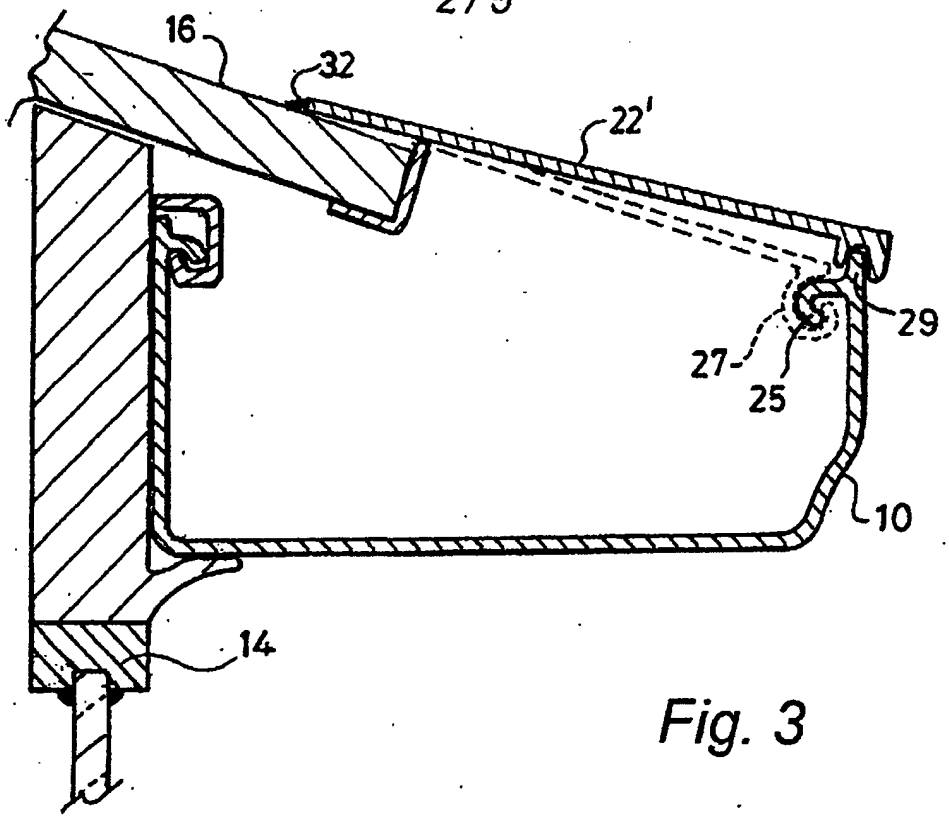

Fig. 3

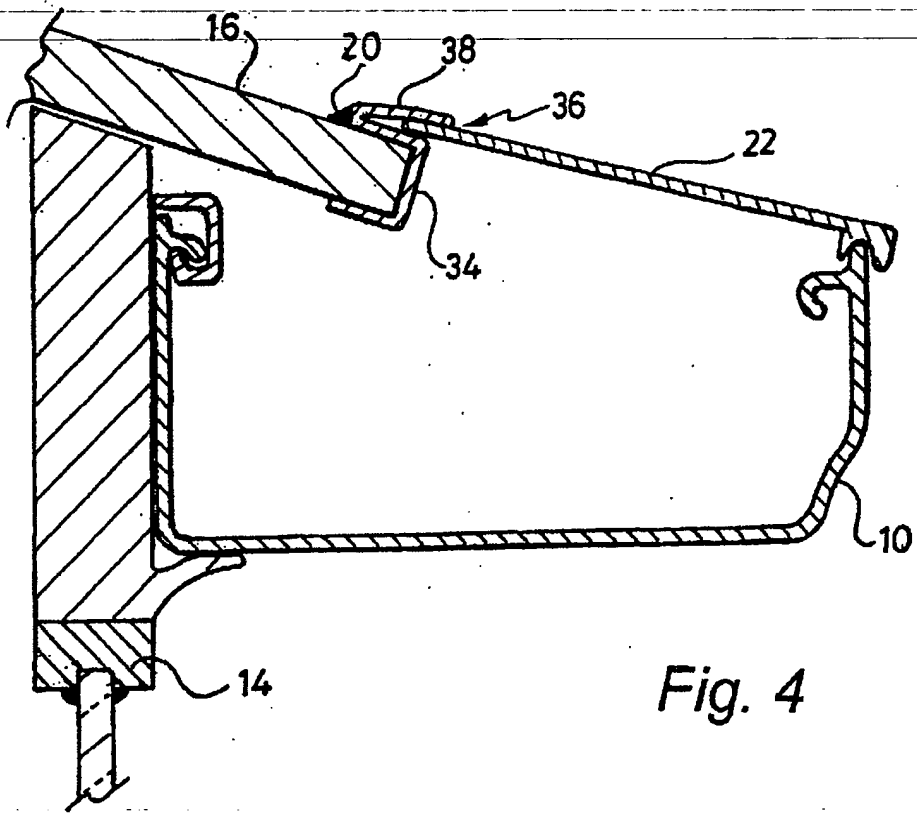

Fig. 4

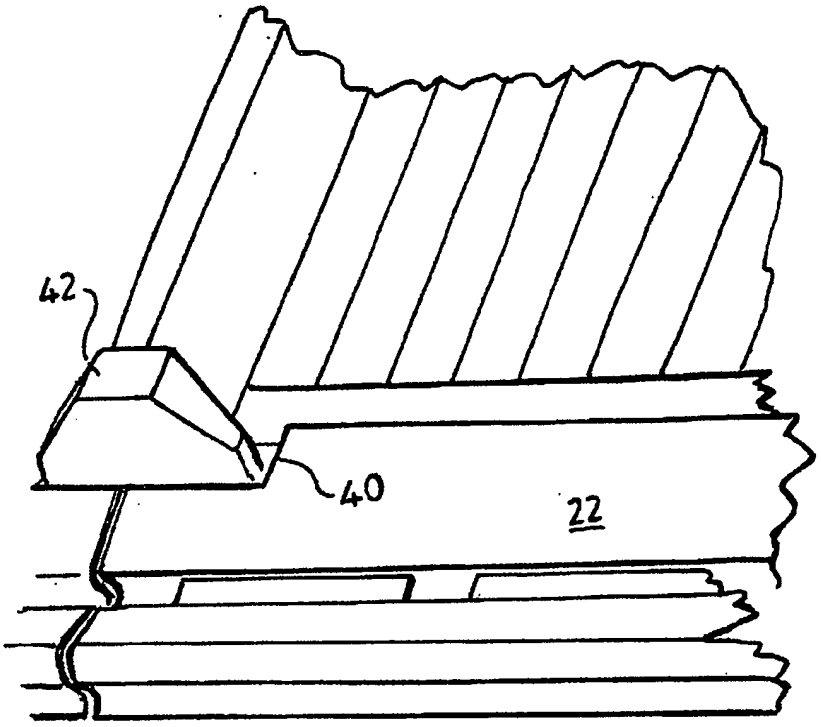

Fig. 5

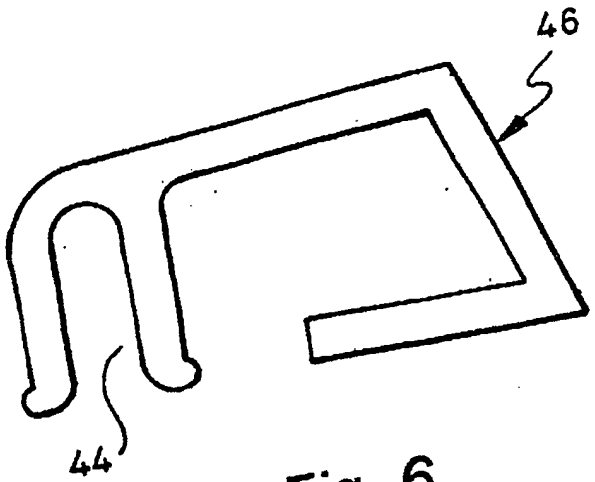

Fig. 6

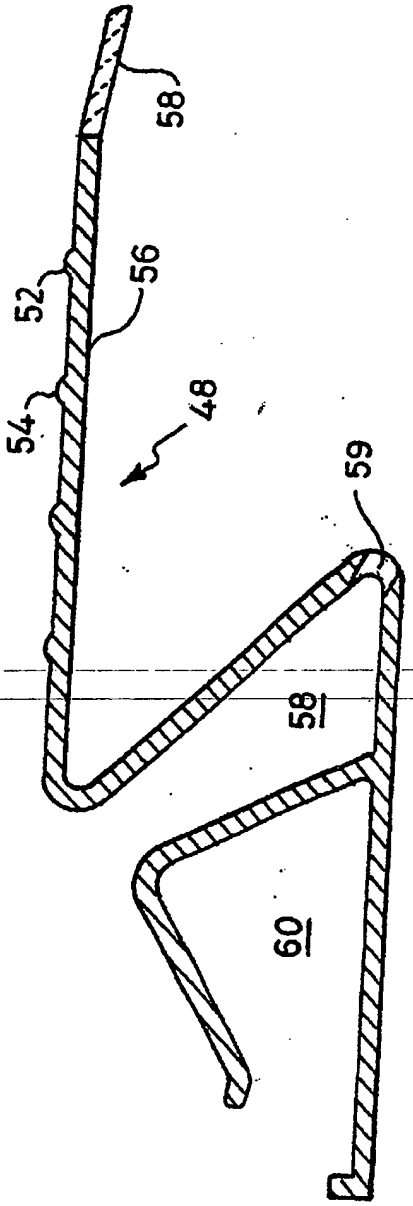

Fig. 7

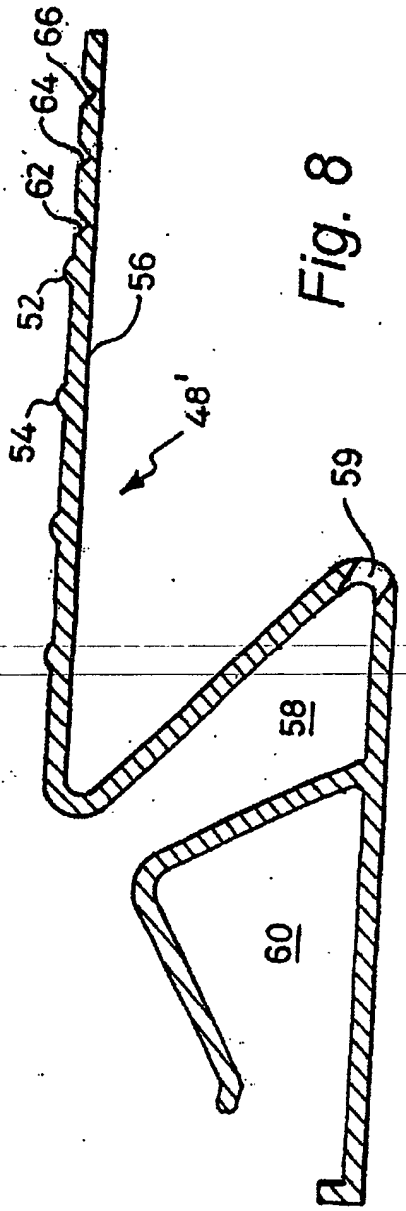

Fig. 8

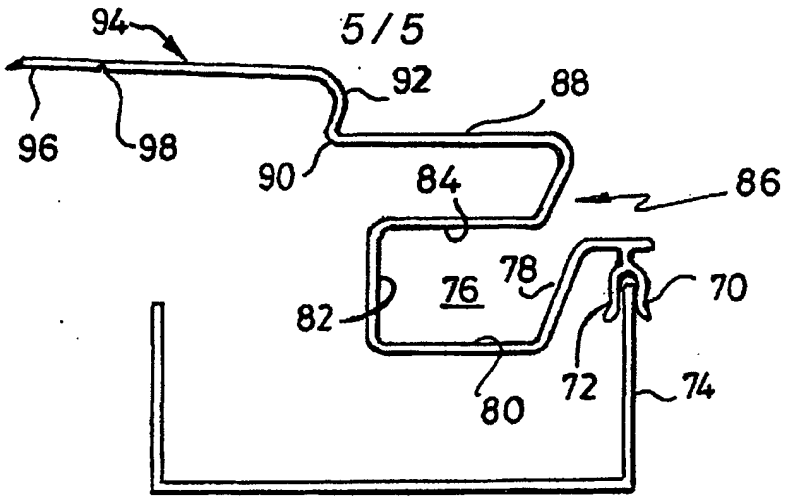

Fig. 9A

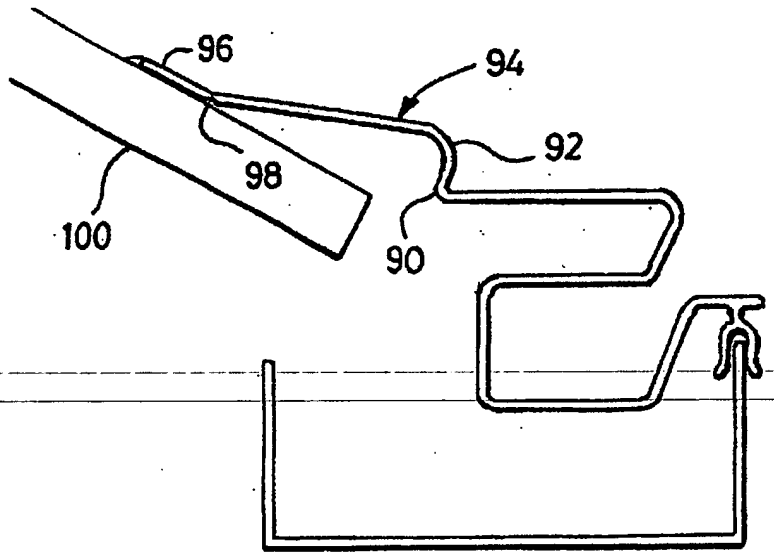

Fig. 9B

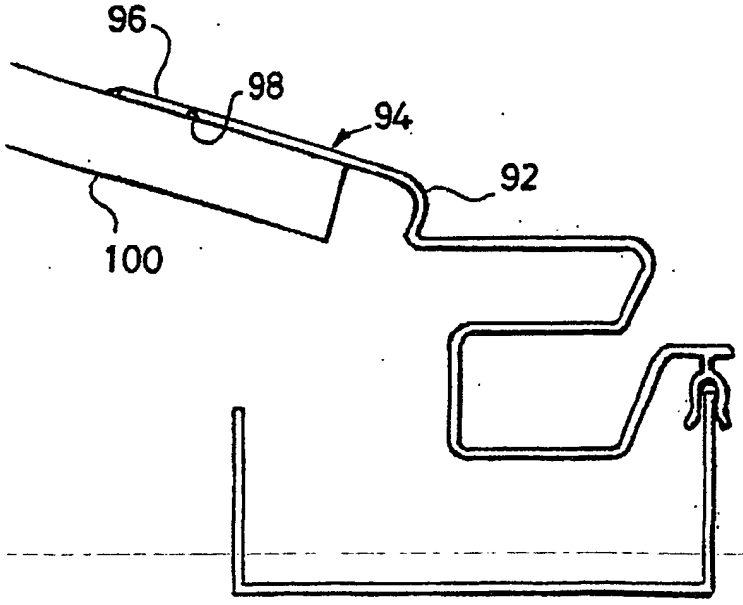

Fig. 9C

2364339

C1215/C

Title: Improvements in and relating to guttering

Field of invention

This invention concerns protective covers for guttering, commonly referred to as gutterguards, which permit the passage of rainwater draining off a roof to enter the gutter, but deflect leaves and other debris over the top of the gutter.

Background

US Patent 5,181,350 illustrates one such gutterguard formed from extruded plastics material which is fitted over roll-formed aluminium guttering and is held in place by being slipped below the outer roof covering of shingles and by being clipped around the inturned outer gutter ledge, which is formed during the roll-forming process as a return flange.

Such a design does not readily adapt to being fitted to a conservatory roof. Typically such a roof is formed from polycarbonate sheets, the lower edges of which terminate within the depth of the guttering.

In order to fit a gutterguard of the type shown in US 5,181,350 to a conservatory roof, the existing conservatory guttering would have to be lowered by something of the order of 50mm to allow the gutterguard "cover" to align with the roof fall, which itself can vary from 5^0 to 35^0. The more popular conservatory roofing systems provide for the guttering to be attached to the ring beam which overlies the glazed frames and even if a modified gutter attachment system could be devised, the lower gutter would now span the glazing and detrimentally affect the appearance of the conservatory from both inside and out.

It is an object of the present invention to provide pre-formed panels which can be fitted to a gutter of a conservatory to prevent leaves and other debris from falling into the gutter, whilst permitting water flowing off the roof to be efficiently and reliably collected in the guttering.

Summary of the invention

According to the present invention, a guard for protecting guttering fitted to a conservatory comprises:

(a) a panel for overlying the open face of a conservatory gutter;

(b) clip means along an outer edge of the panel, which in use will register with the outer gutter edge for securing thereto; and

(c) sealing means associated with the other panel edge which in use sealingly joins that edge to the conservatory roof.

The clip means may be formed integrally with the outer edge of the panel, or may comprise a separate elongate member adapted to be attached to the outer edge of the gutter and the outer edge of the panel.

Where the outer edge of the gutter includes an inwardly turned lip, the clip means may be adapted to engage the latter.

Along its other edge the gutter protecting panel may be secured to the upper surface of the conservatory roof by means of an adhesive, to provide a watertight seal between the roof and the panel.

Alternatively and more preferably, at least part of the panel may be formed from a material having a natural resilience such that the engagement between the panel and the

outer edge of the gutter will tend to bias the panel in a downward sense relative to the gutter edge, so that said outer edge thereof is resiliently forced against the surface of the roof. In that event, preferably a strip of resiliently compressible material such as rubber or plastics or a composite thereof, is secured to the underside of the panel for engaging the surface of the roof to provide a good seal therewith and prevent the ingress of leaves and other debris.

One popular conservatory roof is formed from polycarbonate sheets, the lower edges of which are sealed by means of a channel section profile known as a poly end closure.

In a preferred arrangement, the gutter protecting panel of the invention may to advantage be dimensioned so that its edge just overlies the end closure profile, so as not to be visible from within the conservatory. In that event, the panel edge preferably includes a strip of resiliently compressible material for engaging the poly end closure and forming a seal therewith. The sealing strip may be applied after manufacture of the panel or may be manufactured with the panel by co-extruding the seal material with the plastics material forming the panel, so that the seal is bonded to the edge of the panel by the extrusion process.

In a second preferred arrangement, the poly end closure may be formed integrally with a gutter protecting panel, so that the fitting of the end closure to the polycarbonate sheets secures the inboard edge of the panel to the roof and the clip means secures the outboard edge to the gutter.

In a third preferred arrangement, the upper edge of the poly end closure is formed with a channel into which the inboard edge of the gutter protecting panel can be pushed.

Such an arrangement may be formed during extrusion of the closure profile, so that the upper edge of the profile is of bifurcated construction, the two parts of the bifurcation defining an elongate mouth or channel to receive the gutter protecting panel edge. The two

parts of the bifurcation may be resiliently hinged so that the one part has to be forced away from the other to allow the panel edge to be pushed therein.

Where the poly end closure receives the gutter protecting panel edge as described, or is integrally formed therewith, it is advantageous if the end closure includes an extruded seal along the uphill edge (in manner known per se), so that there is little tendency, when fitted, for water to penetrate between the closure profile and the polycarbonate sheet.

Since the conservatory roof pitch can vary substantially, the gutter protecting panel may include one or more parallel spaced apart half-cuts defining one or more strips adjacent the edge to be sealed to the roof panels, and one or more of the strips are removed by cutting along the half-cut to reduce the width of the remaining panel, to accommodate steep or pitched roofs.

Preferably the upper surface of the gutter protecting panel is formed with ridges during the extrusion process, so that water flowing thereover, in use, is generally decelerated in its downhill progress over the guard.

The guard may be constructed from a plurality of individual lengths or sections of pre-formed panel fitted end to end over the gutter to be protected.

Where the gutter is supported by brackets, the lengths of panel conveniently fit between the brackets.

The or each panel may include slits through which water can pass into the gutter.

Preferably the or each panel is formed with a water collecting trough along its length, into which water running off the roof and onto the panel can pass, and from which it can flow into the gutter.

As described in US Patent 5,181,350 the slits may be formed in the elongate trough formation, if provided, in the or each panel.

Where the panels are formed in sections they may be fitted to the roof and gutter with small gaps between the ends of adjoining sections, so that water collected in the elongate troughs can run into the gutter at the ends of the sections.

Preferably the or each panel is formed with two steps defining water-falls, and the second step measured in the direction of water flow from the roof, is bent around to extend back below the region of the panel section which extends between the two steps, before being bent down, forwardly, and upwardly to define a trough, and the panel region immediately below the second step is inclined backwards to provide a surface around which the water flows into the trough.

The invention will now be described by way of example with reference to the accompanying drawings, in which:-

Figure 1 is a section through an angle of a typical conservatory roof edge, showing the position of the conventional guttering, and the preferred poly end closure profile;

Figure 2 is a similar section showing a gutterguard panel constructed as one embodiment of the invention, secured to the gutter;

Figure 3 is similar section showing another embodiment of the invention;

Figure 4 is a similar section showing a further embodiment of the invention;

Figure 5 is a perspective view showing how the panel can be cut away to accommodate closure at the end of each moulding which retain the abutting edges of alignment polycarbonate roof panel;

Figures 6 and 7 illustrate an alternative gutter guard profile and clip for securing the profile to the gutter edge;

Figure 8 is a cross-section through a gutterguard panel adapted to be progressively reduced in width to accommodate different roof pitches; and

Figure 9 is a cross-section through a further preferred gutter protecting panel embodying the invention.

In Figure 1, a gutter profile is shown at 10 clipped to an upper structural member 12 of a conservatory. The glazed frames such as 14 fit below the member 12 and polycarbonate roof sheets 16 overlie the member 12. An end closure 18 is fitted to the lower edge of the sheets 16 to prevent ingress of moisture and a co-end seal 20 is formed along the uphill edge of the upper part of the profile 18.

It will be seen that a conventional gutterguard could not be fitted to the polycarbonate roof.

In Figure 2 a modified gutterguard extrusion 22 is shown clipped to the front edge 29 of the gutter by means of a grooved region 24 in the extrusion 22, and the angle of the groove relative to the plane of the extrusion is such that the upper edge 26 of the extrusion 22 is resiliently forced into contact with the upper surface of the roof panel 16, or the upper surface of the poly end closure profile 18.

To improve the sealing between the guard edge 26 and the roof/ply end closure, a strip of resiliently deformable sealing material may be formed along or secured to the underside of the edge 26, as shown at 28, to form an uphill seal against the ingress of water draining down the roof.

In Figure 3, the end closure 18 of Figure 1 is replaced by a bifurcated region 30 of the guard panel 22', extruded integrally with the panel 22' and provided with a strip seal of

resiliently deformable material. In all other regards, the arrangement in Figure 3 is similar to that of Figure 2.

In Figure 4, a separate but modified end closure 34 is provided, the upper edge of which defines a slit 36 with a flap 38 (typically extruded integrally with the remainder of the profile 34) to receive the uphill edge of the panel 22. A seal 20 is provided as before along the uphill edge of the closure 34.

Figure 5 shows how the panel 22 can be cut-away at 40 to accommodate roof closure profiles such as 42.

It is proposed that the panel 22 (22') be supplied in standard lengths, which are butt-joined end to end as they are fitted to the guttering, and cut to length as between brackets (where these prevent the run of cover) and cut away as mentioned (as at 40) to accommodate roof closure profiles 42.

Where the guttering includes an inwardly directed lip 25, the downhill edge of the gutterguard panel may be formed with a bifurcated region 27 (shown dotted) to fit therearound instead of over the edge 29.

Preferably the fit between the bifurcated or ground regions of the gutterguard profile and the gutter edge or inwardly directed lip 25, is a snap fit.

Alternatively, as shown in Figures 6 and 7, a clip profile may be extruded as shown in Figure 6 to fit over the outboard gutter edge, and to possess a groove for fitting over the outboard edge of the gutter (not shown) and present a nose 46 for engaging the front edge of a gutter guard profile 48 such as shown in Figure 7. The latter has a sealing lip 50 formed typically during extrusion of the main profile along its rear edge. Ribs 52, 45 etc. are similarly formed during extrusion in the upper surface of the cover region 56 to slow down the flow of water thereover in use, and a water collecting gully 58 is formed between the cover region 56 and the elongate mouth 60 formed by extrusion along the

outboard edge of the guard. The nose 46 is a snap fir in the mouth 60. The bottom of the gully includes drainage slots such as 59.

Figure 8 shows how a profile such as shown in Figure 7 can be modified to fit different pitches of conservatory roof, by breaking off one or more of the sections along one of the half-cut lines 62, 64 or 66 in the profile, to give just the required width of cover to extend from the outboard edge of the gutter to engage with the roof (particularly the poly end closure if fitted). A seal such as 56 may be fitted (optionally) after the profile has been reduced in width as required.

It is to be noted that the cover regions of the profile shown in Figures 2 to 4 may also be formed with flow arresting ribs (such as 52, 54) and/or with a water collecting gully (such as 58) with drainage slots 59, as shown in Figures 7 and 8.

A shown in Figure 9A an alternative gutter guard comprises a plastics moulding or extrusion typically formed (or cut) into 1.2 metre lengths with a pair of jaws 70, 72 formed along one edge of the cross-section for resiliently gripping the outer edge of a gutter 74. The section is formed with a partially enclosed trough section 76 having a front wall section 78, a base section 80, a rear wall section 82 and partial closure or upper wall section 84 which just before it reaches the upper edge of the front wall section 78, bends upwardly at an inclined angle of approximately 70^0 to the horizontal, to form a water fall generally designated 86.

The upper edge of the wall 86 curves around through more than 90^0 so as to form a platform 88 which the section continues in a direction away from the front edge region of the gutter generally parallel to the wall section 84.

Another water fall is created by two further approximately 90^0 bends first in an upward sense, at 90, and secondly in a generally rearward sense at 92, to form a bridge 94 leading to a roof engaging edge region generally designated 96. A half-cut 98 between 94 and 96 allows the latter to be bent at an angle, so that the edge 96 follows the conservatory roof

line and will overlie the lowermost edge region of the roof, typically a poly end closure where the roof is formed from polycarbonate sheets.

This is best seen in Figure 9B where the roof is shown diagrammatically at 100, and edge region 96 is shown bent so as to overlie the roof at the same pitch as the roof. The remainder of the guard is as described with reference to Figure 9A.

A shallower pitched roof could be accommodated in a similar manner to that shown in Figure 9B (by bending 96 relative to 94) or both of sections 94 and 96 may be bent upwardly by distorting bends 90 and 92 so that both 94 and 96 extend at substantially the same angle relative to the roof 100, and closely overlie the latter, as shown in Figure 9C.

Alternatively (not shown) a compromise may be employed by a combination of bending about 90, 92 and 98 can be employed to accommodate the pitch of the roof 100 relative to the horizontal, so that sections 88, 94 and 96 are all inclined to a greater or lesser extent relative to their unstressed positions (relative to the remainder of the section), much as shown in Figure 9A, so that the edge region 96 overlies, and substantially follows the pitch of the roof and the regions 94 and 88 are inclined relative to 96 and to one another so as to make up the change in direction between the pitch of the roof and the horizontal.

C1215/C

CLAIMS

1. A guard for protecting guttering fitted to a conservatory, comprising:

(a) a panel for overlying the open face of a conservatory gutter;

(b) clip means along an outer edge of the panel, which in use will register with the outer gutter edge for securing thereto; and

(c) sealing means associated with the other panel edge which in use sealingly joins that edge to the conservatory roof.

2. A guard as claimed in claim one wherein the clip means is formed integrally with the outer edge of the panel, or comprises a separate elongate member adapted to be attached to the outer edge of the gutter and the to outer edge of the panel.

3. A guard as claimed in claim 1 or 2 wherein the gutter outer edge includes an inwardly turned lip and the clip means is adapted to engage the inwardly turned lip of the gutter.

4. A guard as claimed in claim 1, 2 or 3 wherein along its other edge the panel is secured to the upper surface of the conservatory roof by means of an adhesive, to provide a watertight seal between the roof and the panel.

5. A guard as claimed in claim 1, 2 or 3 wherein the panel may be formed from a material having a natural resilience such that the engagement between the panel and the outer edge of the gutter will tend to bias the panel in a downward sense relative to the gutter edge, so that said outer edge thereof is resiliently forced against the surface of the roof.

6. A guard as claimed in claim 5 wherein a strip of resiliently compressible material such as rubber or plastics or a composite thereof, is secured to the edge region of the panel which is to engage the roof, to provide a good seal therewith and prevent the ingress of leaves and other debris.

7. A guard as claimed in any of the preceding claims in combination with a conservatory roof formed from polycarbonate sheets, the lower edges of which are sealed by means of a channel section profile known as a poly end closure.

8. A guard as claimed in claim 7 which is dimensioned so that its upper edge just overlies the end closure profile, so as not to be visible from within the conservatory.

9. A guard as claimed in claim 8 wherein the upper panel edge includes a strip of resiliently compressible material for engaging the poly end closure and forming a seal therewith.

10. A guard as claimed in claim 9 wherein the sealing strip is applied after manufacture of the panel or is manufactured with the panel by co-extruding the seal material with the plastics material forming the panel, so that the seal is bonded to what will become the upper edge of the panel by the extrusion process.

11. A guard as claimed in claim 7 wherein the poly end closure is formed integrally with the gutterguard panel, so that the fitting of the end closure to the polycarbonate sheets also secures the gutterguard to the roof.

12. A guard as claimed in claim 7 wherein the upper edge of the poly end closure is formed with a channel into which the upper (inboard) edge of the gutterguard panel can be pushed.

13. A guard as claimed in claim 12 wherein the channel is formed during extrusion of the closure profile, so that the upper edge of the profile is of bifurcated construction, the two parts of the bifurcation defining an elongate mouth or channel to receive the gutterguard panel edge.

14. A guard as claimed in claim 13 wherein the two parts of the bifurcation are resiliently hinged so that the one part has to be forced away from the other to allow the panel edge to be pushed therein.

15. A guard as claimed in any of claims 11 to 14 wherein the poly end closure includes an extruded seal along the uphill edge, so that there is little tendency, when fitted, for water to penetrate between the closure profile and the polycarbonate sheet.

16. A guard as claimed in any of claims 1 to 15 in which the distance by which the guard can overlie the roof or closure is selected according to the pitch of the roof.

17. A guard as claimed in claim 16 wherein the panel includes one or more parallel spaced apart half-cuts defining one or more strips adjacent the edge to be sealed to the roof, whereby one or more of the strips can be removed by cutting along the relevant half-cut to reduce the overall width of the panel, to accommodate different pitched roofs.

18. A guard as claimed in any of claims 1 to 17 in which the upper surface of the panel is formed with ridges so that water flowing thereover, in use, is generally decelerated in its downhill progress over the surface of the guard.

19. A guard as claimed in any of claims 1 to 18 constructed from a plurality of individual lengths or sections of pre-formed panel fitted end to end over the gutter to be protected.

20. A guard as claimed in claim 19 wherein the sections are fitted between the brackets which support the gutter.

21. A guard as claimed in any of claims 1 to 20 wherein slits are formed in the panel through which water can pass into the gutter.

22. A guard as claimed in any of claims 1 to 20 wherein the or each section is formed with a water collecting trough the length thereof, into which water running off the roof and onto the panel can pass, and from which it can flow into the gutter.

23. A guard as claimed in claim 22 wherein the sections are fitted to the roof and gutter with small gaps between the ends of adjoining ends thereof, so that water collected in the elongate troughs can run into the gutter from the ends of the sections.

24. A guard as claimed in claim 22 wherein slits are formed in the trough to permit water to pass into the gutter therebelow.

25. A guard as claimed in any of claims 1 to 24 which is formed with two steps defining water falls, to slow down the rate of flow of water over the guard.

26. Gutter guards constructed arranged and adapted to function as herein described with reference to and as illustrated in the accompanying drawings.

INVESTOR IN PEOPLE

Application No: GB 0112153.2 **Examiner:** Joanne Pullen
Claims searched: 1-26 **Date of search:** 25 October 2001

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.S): E1D DPD

Int Cl (Ed.7): E04D

Other: Online: EPODOC, WPI, JAPIO.

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
Y	US 5660001 A	(ALBRACHT) Figure 3a	25
Y	US 5457916 A	(TENUTE) Figures, see trough, 20, and slits, 30.	22 & 24
X, Y	US 5056276 A	(NIELSEN et al) Figures 2 and 3, column 3 lines 18-22 and 56-59, column 4 lines 13-30 and 58-66	X 1-3, 6-8 18, 19 & 21 Y 22, 24 & 25
X, Y	US 4796390 A	(DEMARTINI) Figure 2 and column 3 lines 52-64	X 1, 3, 4, 7, 8 & 16-19 Y 22, 24 & 25

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.